Investigation of gifted students' skills of saying 'no' through neural networks

Volkan Duran[1]*, Hüseyin Mertol[2] and Gizem Yurtdaş[3]

[1]Psychology Department, Iğdır University, Iğdır, Turkey.
[2]Social Sciences Teaching Department, Isparta Süleyman Demirel University, Isparta, Turkey.
[3]Iğdır BİLSEM, Turkey.

ABSTRACT

The aim of this study is to investigate the primary and middle school students' skills of saying 'no' in terms of having special ability, gender, location and age. The study was designed based on the correlational survey model. Population of the study was selected in accordance to convenient sampling method because of time and fund limitations for doing reseach with populations having more number of participants or individuals specially chosen based on specific criteria. It consists of 259 gifted students in different age groups ranging from 7 years old to 13 years old studying centers of science and arts (BİLSEM) in Iğdır and Isparta provinces in Turkey.It should be noted that the students in these centers are chosen based on particular intelligence and ability tests. First finding of our study shows that students having special ability have higher points in the context of refusal dimension but lesser points in terms of resistance dimension. Second finding of our study is that there is no significant difference between students for the skills of saying 'no' in terms of gender. Third finding of our study shows that students in Iğdır have higher points in the context of refusal dimension but lesser points in terms of resistance dimension. Fourth of our study shows that students who are 10 and 11 years old have higher points than others in the context of refusal dimension and students who are 13 years old have higher mean ranks in terms of resistance dimension. Finally, the neural network model shows that the most important factor is to have special ability, the second significant factor is the location, the third one is the age and the last one is the gender which is compatible with our finding. The result showing that the most important factor is to have special ability implies that there is a strong relationship between disposition of saying "no" as a result of critical thinking disposition with having special ability.

Keywords: The skill of saying 'no', critical thinking skill, gifted students, neural networks.

*Corresponding author. E-mail: volkan.duran8@gmail.com.

INTRODUCTION

Apart from their personal, political, social and economic rights, each individual has other rights arising from the situations which might be specific for each individual and each case. These rights, which are not written and not guaranteed by law, are called "assertiveness rights" (Garner, 2012). Assertiveness rights are the right to change one's own behavior and ideas, to take responsibility only for the things which are desired or wished, to make mistakes, to say "I don't know, I don't understand or it doesn't concern me" (Smith, 1998).

Assertiveness was then divided into two categories. Positive assertive behavior includes giving compliments, asking for help, and other actions including voicing a favorable view or seeking services that are managed by others. In negative assertive behavior, one asserts one's rights when they have been, or might be, violated by an unreasonable request. The willingness to refuse drugs is a type of negative competencies (Cleaveland, 1996: 4).

The skill for telling "no" implies that dangerous behaviour can be avoided by self-will and decisions

(Aslan and Özcebe, 2008). These dangerous behaviours can be substance use, sexual abuse,moral or unethical issues, time management problems, possible dangerous offers especially in online environments (Bozkurt, 2020). For example, Because in children as well as adolescents, poor social, assertiveness, and low coping skills is correlated with substance use and addiction, almost all treatment interventions focus on general assertiveness and drug refusal skills. (Cleaveland, 1996: 3). It has been observed that the most effective among stategy is demonstrating the ability to say "no", where the usage of self-protection strategies are betterthan to protect themselves by the aid of others against Sexual Abuse (Leclerc et al., 2011). Therefore, skills of saying "no" is an important concept fort he every phase of education from childhood to adolescence but it is not fully understood as emphasized by (Flay, 1985 cited by Katz et al., 1989):

"For example, it is not known if smoking reductions are the result of the students' ability to perform the refusal skills they are taught, or whether they are caused by other variables such as normative shifts or increased awareness that smoking is not the "in thing to do." It is not even known if refusal skills are ever learned in the first place because these skills are rarely assessed in any systematic fashion."

The problem of not being able to say "no," as a will paralysis, means being oblivious to the current situation, failing to take action, ignoring the issue and waiting, instead of responding (Öcal, 2010). In this respect, the skill for saying "no" is closely related with critical thinking skills because accepting or rejecting situated demands require analyzing them in a critical manner where the propositions are investigated in terms of their validity and consistency. Critical thinking is the state of collecting evidence and supporting it with evidence before accepting anything (Hudgins and Edelman, 1986: 333). According to Üstündağ (2003: 79), it is a process that includes intellectual doubt and hearing and gathering information in this direction. Therefore, it can be said that critical thinking skills are the first step for developing the skill for saying "no". In this study, the ability to say "no" is defined as the individual's personal rights and limits, or when he/she is likely to violate the demands, proposals and behaviors directed to him/her by saying "no" and resisting against potential guidance efforts (Yılmaz, 2017).

Most school-based substance addiction intervention services teach drug-refusal strategies to address social pressure, alcohol use and other medications (Botvin, 1995; Botvin and Botvin, 1992; Elliott et al., 1995; Leclerc et al., 2011; Pentz, 1985; Mackenzie and Nickerson, 2009; Leming, 1997; Szpalski et al., 2003). While social resistance interventions have proven to be successful in avoiding the use of cigarettes, alcohol and marijuana, the

most important facet in the teaching of social skills remained uncertain. In some cases, the interventions rely on knowledge and trust in the general social skills while some depend on drug refusal skills as the most successful way to decrease alcohol use (Scheier et al., 1999). When the literatüre reviewed, it was found that there is a limited number of studies regarding the ability of saying "no" both for children and adults (Açıl Yavuz, 2018; Bapoğlu, 2010; Demiray, 2015; Deryahanoğlu, 2014, Doğan Akıncı, 2006; Esen, 2012; Kapancı, 2006; Varışoğlu et al., 2012; Yurtkulu, 2018; Yılmaz, 2017). Varışoğlu vd. (2012) found that pre-service teachers' mean scores about being able to say "no" did not differ significantly in terms of gender and grade level. In the study of Bulut (2003), university students who are Turkish-speaking Turks and advanced level English-speaking Turks as well as English-speaking Americans preferred indirect forms of saying "no" rather than saying "no" directly in terms of verbal rejection behavior.These results show that there is a need for studying being able to say "no" and for providing educational support for improving this abilitiy.

Literature review also implies that there is a limited number of studies investigating the ability of saying no in terms of various demographic variables. Some results indirectly investigated this ability on the basis of survey design. According to results of the research done by Yılmaz (2017), it was found that primary school 4th grade students' skills of saying "no" do not differ significantly in terms of gender and parents' living status variables; however, they differ in terms of the socioeconomic level, mother and father's educational levels, mother and father's occupations, number of siblings, and the birth order in refusal and resilience dimensions. The results obtained from the study conducted by O'Brien (2014) showed that women are not as willingly as men to say "no" in the face of various demands. Erdem et al. (2005) found that university students are on average level in terms of saying "no" and that they are insufficient in terms of this ability.

It can be seen that there is not so much research especially investigating the skill for saying "no" in terms of democgraphic variables, especially in terms of special ability. However, literature indirectly implies some clues that might be results of such effects, especially for the variable for the special ability in the context of critical thinking skills. For instance, Boran (2016) and Bapoğlu (2010) found that the gifted and talented students have very high levels of critical thinking disposition indicating that they may have more disposition for saying "no". In the context of demographic variables, Açıl Yavuz (2018) found that critical thinking levels of gifted students doesn't differ according to gender but it differs according to their grades in favour of lower grades. Yurtkulu (2018) found no significant difference according to both gender and class level variables in terms of critical thinking skills of the gifted students. Similarly, Bapoğlu (2010) also found

that gifted students got higher results than the non-gifted students and education of their parents, age, class, number of siblings and their perception of success are effective on the assessment of creativity scores although there seems to be no meaningful change in terms of the gender. However, it should be noted that most of these studies were not directly related with the skills of saying "no". Some studies focused on the evaluations of non-verbal refusal elements of observer skills which were either based on systematic actions, such as effectiveness or naturalism, or investigated micro-level actions, such as eye contact, voice tone and hesitation (Epstein et al., 2007; Gottfredson et al. 2010; Sallis et al. 1990; Shope et al., 1993; Turner et al., 1993; Wynn et al., 1997). Most of them were relatively "outdated" in the literature and their population consisted from adolescents (Nichols et al., 2010). Furthermore, this subject has not been so well studied in the Turkish literature as well. Therefore it can be said that there is a gap in this field especially with gifted students. It should be noted that there is a need for teaching these skills in education. For example, in the study of Tezcan (2016), during "Social Skills Education Program (SSEP)", when the students were asked which skills that they think have contributed to them, the first one was listed as "Saying Saying No" skills. Hence, research regarding the skills of saying "No" seems to be required and important for the literature.

In this study skills of saying 'no' was examined in terms of two dimensions as refusal and resistance dimensions. Considering the ability to say "no" stems from necessity to implement the decision at the stages of refusal and resistance after a decision has been made to put the ability into action (Yılmaz and Sözer, 2018). Refusal indicates a natural response to something undesired to be done at the relevant time (Bragger, 1982). Refusal dimensions is related to whether students can say "no" in response to demands and behaviors that they do not like or find reliable. Resistance dimension is related to expressions to determine whether the students step back in the face of the motivation efforts they may experience after saying "no" (Bozkurt, 2020).

Refusal dimension indicates whether students could say "no" for the demands and behaviors they did not like or found unreliable. Resistance dimensions, on the other hand, determine whether or not students stepped back due to their feelings they can have after saying "no" or manipulation efforts they encounter.

In this regard, this study aims at answering following questions:

- Does the students' skills of saying 'no' differ in terms of having special ability?
- Does the students' skills of saying 'no' differ in terms of gender?
- Does the students' skills of saying 'no' differ in terms of location?
- Does the students' skills of saying 'no differ in terms of age?
- Which factor among the variables (special ability, gender, location, age) is most significant for explaining the output variables as resistance and refusal dimensions?

MATERIALS AND METHODS

The goal of the current study is to examine the students' skills of saying 'no' in terms of demographic variables and importance level of them in terms of resistance and refusal dimensions.The study was designed based on the correlational survey model. Survey designs include techniques of studies aimed at describing an existing or previous condition. According to Karasar (2003), in the survey design, the event, individual or object that is the subject of the research is tried to be defined in its own conditions and as it is.

Sample

The sample of this study consists of 259 students in different age groups ranging from 7 years old to 13 years old studying in Centers of science and arts (BİLSEM) in Iğdır and Isparta provinces in Turkey. Science and Art Centers (BİLSEM) are education centers founded by General Directotare of Special Education, Guidance and Counselling Services, Ministry of National Education in Turkey in order to support the special educational needs of students who are gifted and talented in pre-school, primary, secondary and high schools. BİLSEM is a model that can be applied in every region and province of Turkey without isolating gifted and talented students from their peers and without adding extra cost to the education budget (Dönmez, 2004: 72). When students are accepted to BİLSEMs, students who are considered to be talented in their classes are nominated by their classroom teachers. First of all, a group screening evaluation is made with the determined students. Students who pass this group screening evaluation stage are subjected to individual evaluation. Students who pass these stages are enrolled in BİLSEMs (Baykoç-Dönmez, 2014). Group screening evaluation is not an intelligence scale. It is an elimination phase made according to the threshold scores determined in line with the skill areas after the group screening evaluation is made by the Ministry. In the group evaluation process, the scores determined according to the skill areas do not contribute to the results of the individual evaluations made according to the skill areas. Students are nominated in three skill areas. They participate in the education process in the fields of general mental ability, visual arts and music (MEB, 2018). Mental ability areas refers the field that refers to students who respond accurately and quickly to the questions asked, ask questions to learn a new

subject, establish unconventional connections between unconnected ideas, and insist on completing the given tasks with a perfectionist attitude. Visual arts area is the field that expresses the students who are active, fluent and have a wide imagination, who plan the pictures using depth and appropriate proportions between the parts, perceive the objects and environments in detail and make different designs from various materials, and have the potential to produce original designs. Music area is the field that refers to students who perform at a high level in auditory and rhythm, can remember and vocalize one or more sounds and complex musical phrases, have a high level of desire to play an instrument and sing, and have the potential to make a difference in music-related fields.Intelligence scales determined according to grade levels will be applied to students who qualify for individual assessment in the field of general mental ability.Therefore, gifted students are chosen there based on particular evaluation methods as given follows:

1. Intelligence scales determined according to grade levels are applied to students who qualify for individual assessment in the field of general mental ability.
2. Students who are chosen for the individual evaluation in the field of visual arts skills are asked questions where they can reveal their creativity and make original work, and students will be asked to draw. The process consist of two sessions and each session will take 40 minutes. Students are asked to conduct studies that will allow the measurement of different evaluation criteria.
3. Students who qualify for individual assessment in the field of musical ability are asked questions from the fields of "musical hearing / memory" and "musical awareness" according to grade levels.

In this regard, it can be said that all the students in our study are gifted students. Population of the study was selected in accordance to convenient sampling method because of time and funding limitations for doing reseach with populations having more number of participants or individuals specially chosen based on specific criteria. Therefore Bilsem centers in two cities in Turkey as Iğdır and Isparta was selected to form the population of this study since it is not possible to reach all Bilsem Centers in Turkey. It should be noted that the location of two places is very different from each other since Iğdır is a small town on the Turkish-Iran- Azerbaijan- Armenian border. The Iğdir population has more heterogeneous population consisting from Turkish, Azerbaijani, Iranian, and Kurdish ethnicity, though Isparta is more homogeneous in terms of demographic characteristics and its location in the western part of Turkey. Therefore, all of the gifted students in those Bilsem centers were selected fort his study to compare whether demographic and geographic characteristics affect their skills of saying "No".

Some demographic characteristics of the students that

will be used in the analysis can be seen in Table 1.

Measurement tools

"The Scale of Being Able to Say "No" For Children" developed by Yılmaz and Sözer (2018) was used in this study. It has two dimensions, refusal and resistance dimensions. Refusal dimension indicates whether students could say "no" for the demands and behaviors they did not like or found unreliable. Resistance dimensions, on the other hand, determine whether or not students stepped back due to their feelings they can have after saying "no" or manipulation efforts they encounter.

Table 1. The distribution of the students according to their age and cities.

		City		Total
		Igdır	Isparta	
Age	7.00	3	5	8
	8.00	19	27	46
	9.00	37	36	73
	10.00	32	35	67
	11.00	13	24	37
	12.00	6	14	20
	13.00	0	8	8
Total		110	149	259

FINDINGS

Normality tests and analysis procedure

Firstly, in order to analyze students' skills of saying 'no', normality tests should be applied in order for choosing parametric or non-parametric tests. When the descriptive statistics for the data of the skills of saying 'no' was investigated, Skewness, Kurtosis values for the refusal and resistance dimensions were found to be within -1 and +1 range implying that they have normally distributed values (Table 2).

Normality tests for the data as Kolmogorov-Smirnov and Shapiro-Wilk implies that the of the skills of saying 'no' for both dimensions are not normally distributed indicating that we should choose non-parametric tests for further analysis (Table 3).

There are two different data analysis techniques were used in this research. The first one includes non-parametric tests that are The Mann–Whitney and The Kruskal-Wallis test to understand the difference between two or more sample types. SPSS nonparametric tests are mostly used when assumptions such as normal distribution criteria or data types are not met for other tests such as ANOVA or t-tests. Since the data of skills of

Table 2. Descriptive statistics for the data of the skills of saying 'no'.

Descriptives			Statistic	Std. Error
Refusal	Mean		24.3514	.31105
	95% Confidence Interval for Mean	Lower Bound	23.7388	
		Upper Bound	24.9639	
	5% Trimmed Mean		24.7628	
	Median		26.0000	
	Variance		25.058	
	Std. Deviation		5.00582	
	Minimum		9.00	
	Maximum		30.00	
	Range		21.00	
	Interquartile Range		7.00	
	Skewness		-.947	.151
	Kurtosis		.486	.302
Resistance	Mean		11.7375	.33233
	95% Confidence Interval for Mean	Lower Bound	11.0830	
		Upper Bound	12.3919	
	5% Trimmed Mean		11.2887	
	Median		11.0000	
	Variance		28.605	
	Std. Deviation		5.34838	
	Minimum		6.00	
	Maximum		30.00	
	Range		24.00	
	Interquartile Range		9.00	
	Skewness		.924	.151
	Kurtosis		.452	.302

Table 3. Normality tests for the data.

Tests of Normality	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Refusal	.135	259	.000	.907	259	.000
Resistance	.142	259	.000	.899	259	.000

a. Lilliefors Significance Correction.

saying 'no' for both dimensions are not normally distributed, we that chose non-parametric tests for further analysis. In the Mann-Whitney U test, the variations between the two experimental groups where either ordinal or continuous but not usually distributed dependent variables were compared to each other. The Kruskal-Wallis H test is a rank-based non-parametric test which can be used to determine whether two or more classes of independent variables differ statistically significantly from a continuous or ordinal dependent variables.

Secondly, we use neural network analysis to understand which variables has the greatest effect on the dependent variable. Artificial Neural Networks are parallel and distributed information processing structures that are inspired by the human brain and consist of processing elements that are connected to each other through weighted connections. Its most important feature is that it can learn by making use of experiences. Artificial neural networks have the ability to create relationships between knowledge as well as learning (Uğur and Kınacı, 2006). Artificial neural networks have many advantages and disadvantages according to the desired problem or situation, the model chosen for the solution, the sample

data set used and the learning rules. The benefits of neural artificial networks can be summarized as follows (Elmas, 2003; Öztemel, 2012: Tepehan, 2011: 31-32; Yiğit, 2011: 19-20):

1. First of all, artificial neural network models are nonlinear models. The nonlinearity of the equation and the interactions between variables cause essential problems in prediction problems. This is a significant advantage of artificial neural networks compared to other existing forecasting approaches. Artificial neural networks that do not rely on hypothesis of normality and linearity in traditional estimation methods do not require questioning these assumptions before analysis.
2. Artificial neural networks can perform machine learning. The main function of artificial neural networks is to enable the computer to learn. They can learn the events and make rational decisions in the face of similar events.
3. The flexible configuration of artificial neural networks is a mixture of small, parallel computing elements (artificial nerve cells). It will then function for information that is missing. They have fault tolerance. The loss of output in part of the network will only cause some performance loss.
4. Information is stored throughout the network. As in traditional programming, information is not kept in databases or files in a certain order, values spread over the entire network are stored in network connections.
5. Neural artificial network models can run with an infinite number of inputs, parameters and various types of data. Classification, sorting, equally spaced or uniform scale of data does not affect its work.
6. They can generate information about unseen examples. By making generalizations from the examples shown to it, the network can generate information about the examples that has not been seen before by it.
7. They can associate and classify patterns. Networks can associate the patterns given as examples to themselves or with others.
8. Artificial neural networks have the ability to adapt by changing their connection weights in accordance with the changes in environmental conditions.
9. It is extremely feasible and economical to use artificial neural networks. Only descriptions of the problem or condition are necessary as well as simple software. It can be seen to be very cost-effective in that regard.

It is possible to list the disadvantages of artificial neural networks as follows (Elmas, 2003; Öztemel, 2012; Tepehan, 2011: 32-33; Yiğit, 2011: 20-21):

1. In artificial networks, the main disadvantage is that no approach being available to direct users about how many layers are used in the network model and how many artificial neural cells are used in these layers. The trial and error method are then used to evaluate the correct

artificial neural network model for the problem.
2. It is hardware dependent. The ability to perform parallel processing, which is one of the most important features of networks and one of the reasons for their existence, performs with processors running in parallel.
3. The learning speed of the artificial neural network and how many examples that are needed cannot be predicted. Therefore, it is a mystery how many samples should be included in the sample data set. It requires the number of samples to be as many as possible.
4. Test data sets are closely related to the computational capacities of the artificial neural network. If there are so many missed or inaccurate data on the sample data, the artificial neural network may reasonably map these imperfect or incorrect data to the available data and the problem could be may be the wrong learning of the network.
5. Network representation of the problem to be learned is an important problem. Networks can only work with numerical information. For this reason, the problem should be converted into numerical representation.
6. If the artificial neural network model established with the sample data set and the selected learning rule are not compatible with each other, they may not be able to produce a suitable solution for the problem or they may make mistakes in the solution.
7. There is no specific method of when the training of the network should be completed. Reducing the error of the network on the samples below a certain value is deemed sufficient to complete the training.
8. The artificial neural network has no ability to explain the relationships in the sample data set related to the problem. For example, in traditional estimation methods, while the effects of each independent variable on the dependent variable can be explained, the artificial neural network cannot provide information about individual relationships. Therefore, it offers only holistic solutions.

While neural networks require models and assumptions to be minimal, the general network architecture is still useful to understand. In artificial neural networks, mosty the structure which is known as a feedforward architecture since the connections in the network flow forward from the input layer to the output layer without any feedback loops. This structure has three parts (IBM SPSS Neural Networks 21, 2011: 10; Elmas, 2003; Öztemel, 2012; Özkan, 2019):

- The input layer contains the predictors. The input layer is the layer that transmits the data from the external environment to the secret layer.
- The hidden layer contains unobservable nodes, or units. The value of each hidden unit is some function of the predictors; the exact form of the function partially depends on the network type and partly on the parameters that can be regulated by users. The hidden layer processes and transfers the information from the

input layer to the output layer. Information collection is carried out in hidden layers. Depending on the network structure the number of hidden layers varies. The hidden layer may be in a single layer, or in an artificial neural network there can be more than one hidden layer.

- The output layer contains the target (dependent) variables. They process the information received by the hidden layer and produce the output required for the input set (sample) presented to the input layer of the artificial neural network, and these output values are transmitted to the external environment. The activation function has an important role in this process. The activation function "links" the weighted sums of units in a layer to the values of units in the succeeding layer (IBM SPSS Neural Networks 21, 2011: 10). Hencei Activation Function, can be defined as a model of the connection between nerve cells, its architecture, as the calculation of weights between connections in any artificial neural network (Aydın, 2002) (Figure 1).

In the analysis of the data independent variable importance analysis was used. "Independent variable importance analysis performs a sensitivity analysis, which computes the importance of each predictor in determining the neural network. The importance of an independent variable is a measure of how much the network's model-predicted value varies with different values of the independent variable. Normalized importance is just the importance values which are grouped by and represented as percentages of importance values. However, it should be underlined that you cannot tell is the "direction" of the relationship between these variables and the predicted probability of defaul" (IBM SPSS Neural Networks 21,

2011: 53-54).

After analyzing whether there are significant differences among the variables as having a special ability, gender, location and age, neural network analysis was performed in order to determine which factor is the most effective for explaining the dimensions of refusal and resistance. As can be seen by the neural network's structure, location (writen as şehir in Turkish), age (writen as yaş in Turkish), gender (writen as şehir in Turkish) are taken as the input variables in the neural network structure and refusal (writen as reddetme in Turkish), and resistance (writen as direnme in Turkish) are the output variables in the model. Activation function was taken as Sigmoid function and our model has two inner layers as it can be seen in Figure 2. Sigmoid function was used as an activation function in this study because the answers are definitely not discrete as well as it is a continuous and nonlinear function and it has a wide usage (Şahin, 2010).

Mann-Whitney test results for the skills of saying 'no' in terms of having special ability

Mann-Whitney test results for the skills of saying 'no' in terms of having special ability show that there is a significant difference between students in terms of whether they have special ability or not (Table 4).

When the descriptive results are investigated for determing the direction of this difference, it was found that students having special ability have higher points in the context of refusal dimension but lesser points in terms of resistance dimension (Table 4).
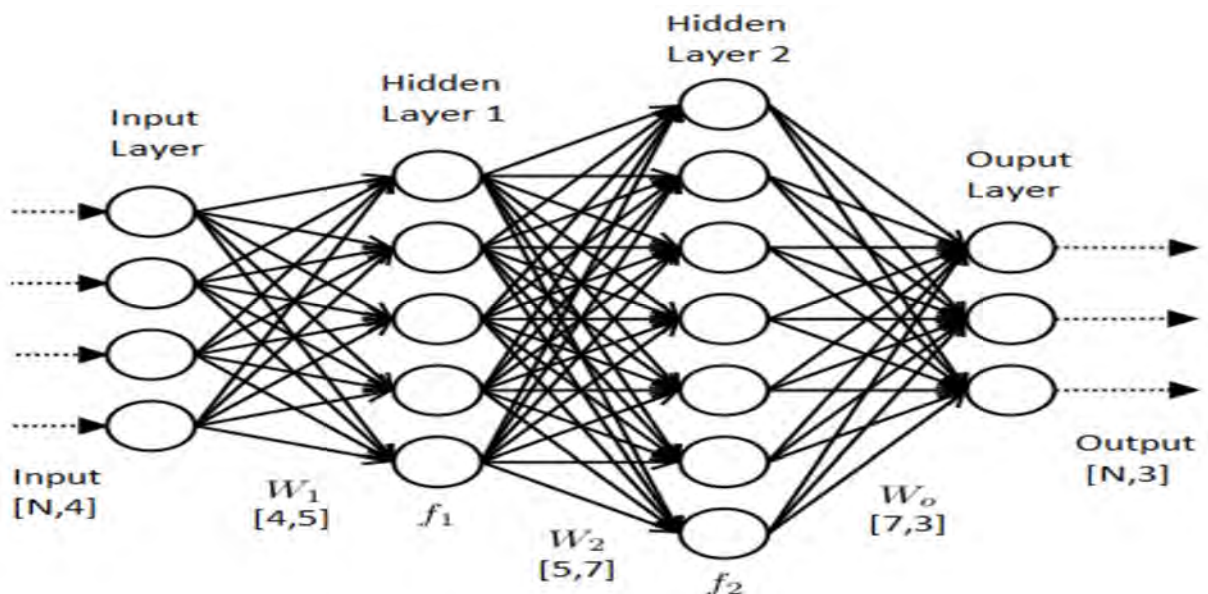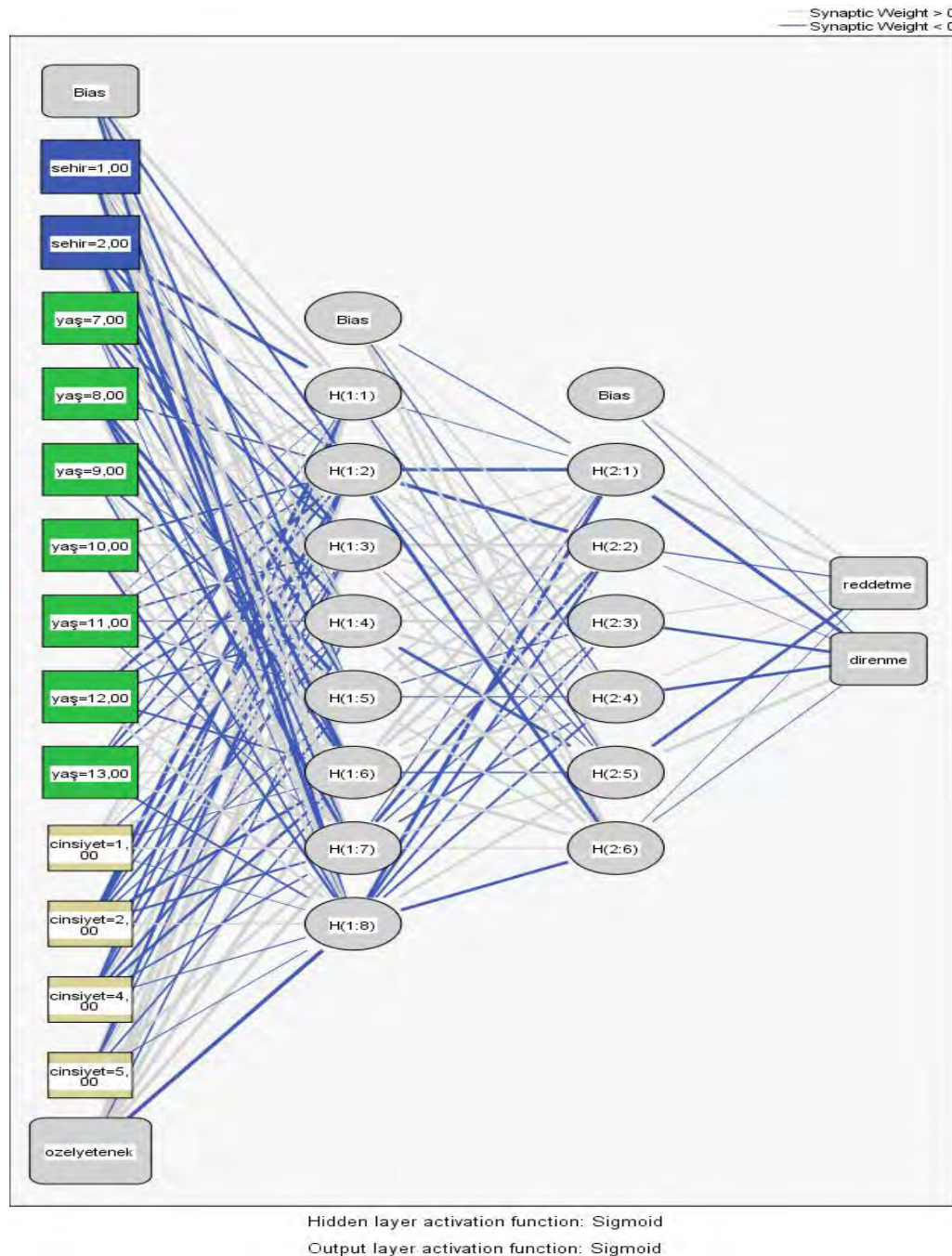

Figure 1. A simple structure of a neural network[1].

---

[1] https://becominghuman.ai/neural-networks-the-rudiments-and-the-mathematics-d85bff42b361 retrieved from 15.09.20.

Figure 2. Neural network model for the skills of saying 'no'.

Mann-Whitney test results for the skills of saying 'no' in terms of gender

Mann-Whitney test results for the skills of saying 'no' in terms of gender show that there is no significant difference between students in terms of their gender (Table 5). Additionally, descriptive results indicate that they have similar average mean ranks in this context. These results show that the skills of saying 'no' are not significantly difffered in terms of gender. In other words,

gender variable does not make a significant change in the skills of saying 'no'. This can be seen both by asymp. sig. values and average mean ranks as well.

Mann-Whitney test results for the skills of saying 'no' in terms of location

Mann-Whitney test results for the skills of saying 'no' in terms of their location show that there is a significant

Table 4. Test Statistics for the Mann Whitney test results for the skills of saying 'no' in terms of having special ability.

Test Statistics[a]		Refusal		Resistance
Mann-Whitney U		5488.000		5565.500
Wilcoxon W		8809.000		21496.500
Z		-3.093		-2.961
Asymp. Sig. (2-tailed)		.002		.003

Ranks	Special ability	N	Mean Rank	Sum of Ranks
	Normal	81	108.75	8809.00
Refusal	Having special ability	178	139.67	24861.00
	Total	259		
	Normal	81	150.29	12173.50
Resistance	Having special ability	178	120.77	21496.50
	Total	259		

a. Grouping Variable: Special Ability.

Table 5. Test Statistics for the Mann Whitney test results for the skills of saying 'no' in terms of gender.

Test Statistics[a]	Refusal	Resistance
Mann-Whitney U	7611.500	6972.500
Wilcoxon W	13827.500	17557.500
Z	-.746	-1.843
Asymp. Sig. (2-tailed)	.456	.065

a. Grouping Variable: cinsiyet.

difference between students in terms of their cities (Table 6). These results show that the skills of saying 'no' are significantly difffered in terms of location. In other words, location variable does make a significant change in the skills of saying 'no'. This can be seen both by asymp. sig. values and average mean ranks as well .

When the descriptive results are investigated for determing the direction of this difference, it was found that students in Iğdır have higher points in the context of refusal dimension but lesser points in terms of resistance dimension (Table 6).

Kruskal-Wallis test results for the skills of saying 'no' in terms of age

Kruskal-Wallis test results for the skills of saying 'no' in terms of their age show that there is a significant difference between students in terms of their age (Table 7). These results show that the skills of saying 'no' are significantly difffered in terms of age. In other words, lage variable does make a significant change in the skills of saying 'no'. This can be seen both by asymp. sig. values and average mean ranks as well. However, For exampe,

when the mean ranks of age 8 and age 9 are compared, it can be seen that there is a 11 point difference in the refusal dimension which potentially implies that there is a significant differecen between those two groups. It should be noted that alla ge groups have bigger differences bigger than 5 except the mean ranks of age 7 and age 12 in resistance dimension anda age 9 and age 13 in refusal dimension. Therefore, we cannot said all age groups are significantly differed from each other since the sig. value of he Kruskal-Wallis test results does not particularly shows where the significant difference is, but we can realize the groups having significant differences in terms of their mean ranks.

When the descriptive results are investigated for determing the direction of this difference, it was found that students who are 10 and 11 years old have higher points than others in the context of the refusal dimension and students who are 13 years old have higher mean ranks in terms of the resistance dimension (Table 8).

Distribution of the mean ranks of the students in the context of refusal dimension shows an increase at 10 years and then a decrease after this age (Figure 3). It implies that refusal skills have peak values in these ages but later they decrease which will be discussed in the

Table 6. Test Statistics for the Mann Whitney test results for the skills of saying 'no' in terms of location.

Test Statistics[a]	Refusal	Resistance
Mann-Whitney U	6541.500	5898.000
Wilcoxon W	17716.500	12003.000
Z	-2.787	-3.881
Asymp. Sig. (2-tailed)	.005	.000
a. Grouping Variable: sehir		

Ranks	Sehir	N	Mean Rank	Sum of Ranks
Refusal	Igdır	110	145.03	15953.50
	Isparta	149	118.90	17716.50
	Total	259		
Resistance	Igdır	110	109.12	12003.00
	Isparta	149	145.42	21667.00
	Total	259		

Table 7. The Kruskal-Wallis test results for the skills of saying 'no' in terms of age.

| Test Statistics[a,b]	Refusal	Resistance
Chi-Square	21.609	10.659
df	6	6
Asymp. Sig.	.001	.100

a. Kruskal Wallis Test
b. Grouping Variable: yaş.

Table 8. Descriptive Results of Kruskal-Wallis test results for the skills of saying 'no' in terms of age.

Ranks	Age	N	Mean rank
Refusal	7.00	8	96.63
	8.00	46	105.24
	9.00	73	116.12
	10.00	67	158.43
	11.00	37	148.76
	12.00	20	126.60
	13.00	8	116.00
	Total	259	
Resistance	7.00	8	151.19
	8.00	46	128.64
	9.00	73	112.66
	10.00	67	130.20
	11.00	37	138.99
	12.00	20	149.20
	13.00	8	183.63
	Total	259	

discussion section by the findings of Bozkurt (2020) and the remarks of Herrmann and Mcwhirter (1997).

Interestingly, distribution of the mean ranks of the students in the context of resistance dimension shows a
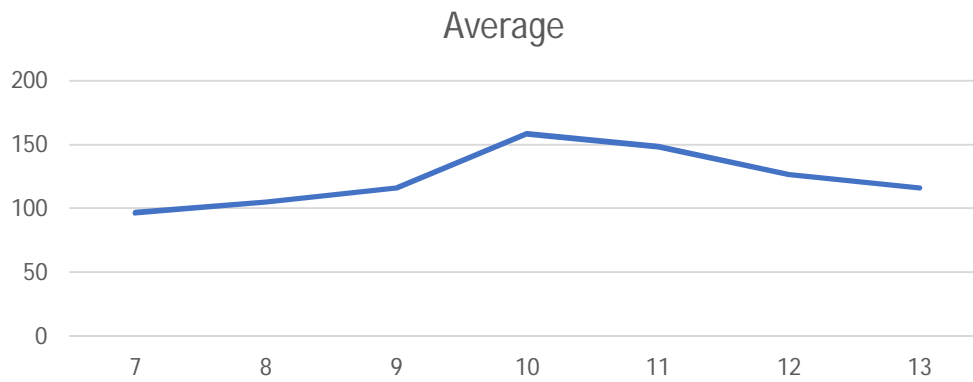
Figure 3. Distribution of the mean ranks of the students in the context of refusal dimension.

decrease at 9 years and then a decrease after this age (Figure 4).

It can be inferred that there is some sort of an opposing relationship (concave up- concave down) in those two dimensions in terms of age.

Neural network analysis for the skills of saying 'no' in terms of age, gender, location and having special ability

Case processing summary displays the case processing summary table, which summarizes the number of cases included and excluded in the analysis, in total and by training, testing, and holdout samples (IBM SPSS Neural Networks 21, 2011: 16). Case processing summary of the neural network analysis for the skills of saying 'no' in terms of age, gender, location and having special ability shows that 68,0% belongs to training and 32,0% belongs to testing and all the cases are valid (Test 12). The case processing summary shows that 259 cases were assigned to the training sample and 83 of them to testing sample. No cases excluded from the analysis.

Case processing summary for the neural network analysis for the skills of saying 'no' can be given as shown in Table 9.
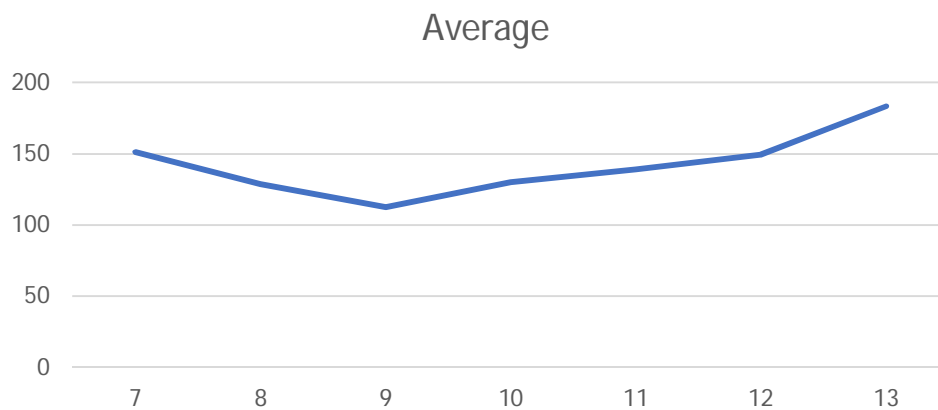
Figure 4. Distribution of the mean ranks of the students in the context of resistance dimension.

Table 9. Case processing summary for the neural network analysis for the skills of saying 'no'.

Case processing summary		N	Percent
Sample	Training	176	68.0%
	Testing	83	32.0%
Valid		259	100.0%
Excluded		0	
Total		259	

"The model summary displays information about the results of training and applying the final network to the holdout sample. Sum-of-squares error is shown since the output layer has scale-dependent variables. This is the error function which the network is attempting to minimize during the testing. For each variable depending on the scale, the relative error is the ratio of the sum-of - squares error for the dependent variable to the sum-of - squares error for the "null" model, where the mean value of the dependent variable is used as the predicted value for each case. The average relative overall error and relative errors are reasonably stable over the preparation, measuring, and holdout tests, which gives you some confidence that the model is not overtrained and that the network's scoring error will be similar to the error recorded in this table in future situations" (IBM SPSS Neural Networks 21, 2011: 65). Model Summary for the neural network analysis for the skills of saying 'no' can be given as follows in Table 10.

Independent variable importance analysis performs a sensitivity analysis, which computes the importance of each predictor in determining the neural network. This creates a table and a chart displaying importance and normalized importance for each predictor (IBM SPSS Neural Networks 21, 2011: 65). Independent Variable Importance for the skills of saying 'no' shows that the most important factor for the neural network analysis for the outputs of resistance and refusal dimensions was found to be to have special ability (Table 11, Figure 5).

Second significant factor for the neural network network analysis for the outputs of resistance and refusal dimensions was found to be location. Third important factor is the age and the last one is the gender.

Table 10. Model summary for the neural network analysis for the skills of saying 'no'.

Model Summary			
Training	Sum of Squares Error		8.827
	Average Overall Relative Error		.929
	Relative Error for Scale Dependents	Refusal	.938
		Resistance	.916
	Stopping Rule Used		1 consecutive step(s) with no decrease in error[a]
	Training Time		0:00:00.12
Testing	Sum of Squares Error		4.109
	Average Overall Relative Error		.990
	Relative Error for Scale Dependents	Refusal	1.009
		Resistance	.974

a. Error computations are based on the testing sample.

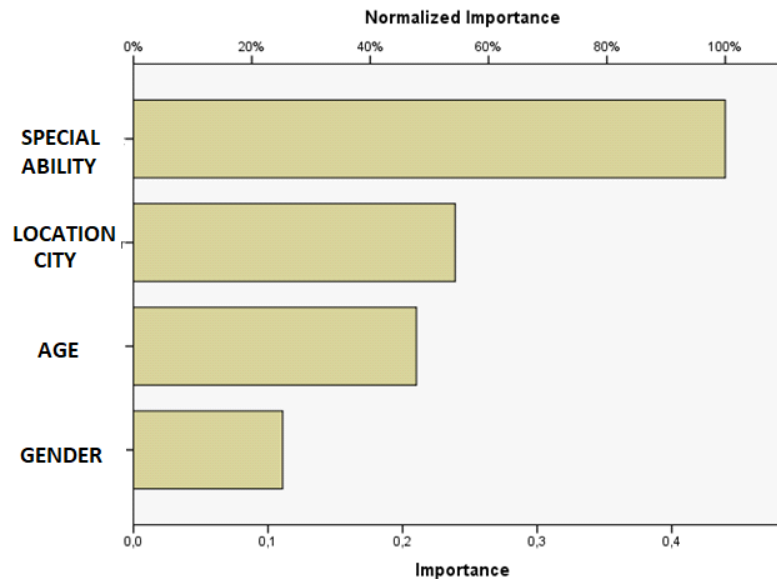**Table 11.** Independent Variable Importance for the skills of saying 'no'.

Independent variable importance	Importance	Normalized importance (%)
Location	.239	54.4
Age	.210	47.8
Gender	.111	25.2
Special Ability	.440	100.0

DISCUSSION

Skills of saying "no" is an important concept for the every phase of education from childhood to adolescence but it is not fully understood as emphasized by (Flay, 1985; Katz et al., 1989). Therefore the goal of the current study is to examine the students' skills of saying 'no' in terms of demographic variables and importance level of them in terms of resistance and refusal dimensions.

First finding of our study shows that students having special ability have higher points in the context of refusal dimension but lesser points in terms of resistance dimension. Therefore, it can be argued that students having special ability are inclined to refuse the undesired demands for themselves hence they don't need to resist such demands at all. On the other hand, normal students are more inclined to resist such undesired demands rather than refusing them at the first stage. It should be noted that Bozkurt (2020) found that one out of every 3 children had a low ability to say no according to the classifications made according to the estimation values. Also Bozkurt (2020) emphasized that rejection dimension

Figure 5. Independent Variable Importance for the skills of saying 'no'.

of the ability to say no skill scale i indicates that one out of every 4 children in the the society is in the risky group whose rejection skills are not developed. Our results is compatible with the findings of Boran (2016) and Bapoğlu (2010), implying that the gifted and talented students have very high levels of critical thinking disposition indicating that they may have more disposition for saying "no".

Second finding of our study is that there is no significant difference between students in terms of their gender for the skills of saying 'no' in terms of gender. Our finding is supported by the findings of Açıl Yavuz (2018), Bapoğlu (2010), Demiray (2015), Deryahanoğlu (2014), Doğan Akıncı (2006), Esen (2012), Kapancı (2006), Varışoğlu et al. (2012), Yurtkulu (2018), and Yılmaz (2017). However, our study is contradicted to study of Bozkurt (2020) which In the study, it was determined that the ability to say no and assertiveness levels of the children in the last childhood differ according to gender. The difference can be explained by the population difference since our population consists from gifted students. Hence, according to findings of this study, it can be concluded that gender roles has no significant contribution to the disposition of saying "no" in terms of gender roles. However, this doesn't mean that gender as a variable has no significance as indicated by the neural network analysis. Maybe some factors such as age, experience or culture may cause this difference according to gender to emerge. For instance, O'Brien (2014), who carried out one of the few studies about being able to say "no" directly, focused on gender differences of saying "no". It was found that women are not as voluntary as men to say "no" in the face of various task demands. Furthermore, it was found that women

who say "no" are evaluated by their managers as underperforming, less worthy of an award and less positive.

It might be also related to the concept of attitude accessibility that is the intensity of the interaction between an item and its appraisal, typically determined by its speed at which people are willing to express their feelings about an entity or issue. When accessibility is high, your attitude comes to mind whenever you see or think about the attitude object. When accessibility is low, your attitude comes to mind more slowly (Aronson et al., 2010: 196). Because of these reasons, maybe gender differences are not seen in terms of gender roles.

The third finding of our study shows that gifted students in Iğdır have higher points in the context of refusal dimension but lesser points in terms of resistance dimension and vice versa can be said for the students in Isparta. This results imply that location or local culture somehow affects the disposition of saying "no" afterwards. In the study of Bulut (2003), which sample consists from English-speaking Americans, Turkish-speaking Turks and Turks who can speak advanced English, it is found that all groups preferred indirect ways of saying "no" rather than directly saying "no" in terms of verbal rejection behavior. In this regard, it can be said that local culture may be an effective factor for the the sub-dimensions of "saying no". Iğdır is a small city located at the border of Turkey-Iran- Azerbaijan-Armenia. The population of Iğdır is more heterogenous in terms of identity and religious sects that consists from Turks, Azerbaijani Turks, Iranians and Kurds whereas Isparta is a more homogenous city in terms of its population that is located in western Turkey and is the capital of Isparta Province. Maybe general attitude of

"saying no" is not seen as a general behaviour because no specific contexes are asked in the application of the abstract scales and measurement tools just as we used. According to Theory of Planned Behavior, "people's intentions are the best predictors of their deliberate behaviors, which are determined by their attitudes toward specific behaviors, subjective norms, and perceived behavioral control" (Ajzen, 1985; Aronson et al., 2010). For example, Ringwalt and Palmer (1990) found that white students ranked the conflict of friends and peers' rejection as significant factors for not drinking in an analysis of discrepancies between African American and White youth who drink excessively, whereas African American students ranked the opposition of adults more important.

The fourth finding of our study shows that students who are 10 and 11 years old have higher points than others in the context of refusal dimension and students who are 13 years old have higher mean ranks in terms of resistance dimension. It is also implied that there is some sort of an opposing relationship (concave up- concave down) in those two dimensions in terms of age. In the study of Bozkurt (2020), there was a significant difference between the age groups in the screening group according to the age variable of the children in the last childhood period, while this difference was not observed in the clinical group. Research results (Bozkurt, 2020) revealed that the group that made the difference in the screening group was the 11 age group. It should be noted that In terms of age variable, 9 years (12.5%), 10 years (19.0%), 11 years (39.3%) are in the risk group in the screening group in terms of refusal dimension in her study. In terms of age variable, 9 years (15.8%), 10 years (25.5%), 11 years (40%) are in the risky group in the screening group according to resistance dimension in her study. It was observed that the scores obtained on the scales decreased with age. Therefore, these contradicting results shows that gifted students are very different from average students in terms of saying "no". Refusal and resistance skills, which are sub-dimensions of the ability to say no, need to be developed at the 1st and 3rd grade levels. 4th and 6th grades are considered as critical periods for the development of these skills. As emphasized by (Herrmann and Mcwhirter, 1997):

"Children of different age levels differed significantly in their use of compliance-resisting strategies. Negotiation tended to increase with age, indicating that as children become more aware of the feelings of others they tend to use more prosocial complianceresistance strategies (e.g., "No, I don't want to do that because it will make her feel bad")".

Yüce (2002) found in his study that rejection skills differ according to students' grade levels. This result is similar to the research. This may be assumed that the child who comes into the adolescence stage, on the one hand, is under the influence of their families, on the other, they want to rid themselves of their inner families attachment,

not to express themselves to their parents, and the children who come into adolescence outside seek to be integrated into informal and social communities (Bozkurt, 2020). Therefore, it can be suggested that age is somehow effective for the disposition of saying "no".

Finally, the neural network model shows that the most important factor is to have special ability, the second significant factor is the location, the third one is the age and the last one is the gender which is compatible with our finding. The factor of having special ability implies that there is a strong relationship between disposition of saying "no" and having special ability. It is thought that it might be a result of expected correlation between critical thinking disposition and special ability.

Limitation

First limitation of this study is that it is conducted only two cities as Isparta and Iğdır in Turkey. Second limitation of this study is that the age range is between 7 and 13 years old. Third limitation of this study is that it is a quantitative research rather than a mixed research. It has 12 items and is a 5-pointed Likert type scale.

RECOMMENDATİONS

It is recommended to make projects and seminars in schools that include the social skills of children and their ability to say no. It is recommended to make more researches by considering the situations that children may be exposed to when they cannot display their ability to say no. More studies are recommended to determine what will be effective in learning the ability to say no. Programs that include refusal skill training have been shown to be effective in reducing problem behaviors among adolescents (Botvin et al. 1995; Rohrbach et al. 1987; St. Lawrence et al. 1995; Sussman et al. 1993). Therefore, such programs should be included in gifted curriculums as well as other curriculums such as sexual education or drug education aiming at (Turner et al., 1993):

1. teaching students knowledge of ways to say "no,"
2. engaging students in the practice of refusal assertion,
3. motivating students to perform refusal assertion in a socially skilled way

For future researches, the following reccomendations can be given:

- The age range of the sample can be expanded into wider.
- This study can be investigated based on qualitative and mixed research designs.
- Different analysis methods can be used for subsequent

studies.

REFERENCES

Açıl Yavuz, F. (**2018**). The analysis of the relationship between the level of mathematical productivity and critical thinking ability of gifted students. Unpublished Master Thesis, https://tez.yok.gov.tr.

Ajzen, I. (**1985**). From intentions to actions: A theory of planned behavior. In J. Kuhi & J. Beckmann (Eds.), Actionócontrol: From cognition to behavior (pp. 11ó39). Heidelberg: Springer.

Aronson, E. Wiilson, T. D., and Akert, R. M. (**2010**). Sosyal Psikoloji [Social Psychology]. İstanbul: Kaknüs Yayınları.

Aslan, D., and **Özcebe**, H. (**2008**). Eğitim kurumlarında sigarasızlık politikaları [Non-smoking policies in educational institutions]. Ankara: Klasmat.

Aydın, B. (**2002**). Basit ve Geri Yayılımlı Yapay Sinir Ağları, Uygulama Alanları [Simple artificial neural networks with back propagation, application areas]. Unpublished Master Thesis, https://tez.yok.gov.tr.

Bapoğlu, S. S. (**2010**). The research of creativity and critical thinking levels of gifted and normal children. Unpublished Master's Thesis, retrieved from 10.02.2020.

Baykoç-Dönmez, N. (**2014**). Özel gereksinimli çocuklar ve özel eğitim [Children with special needs and special education] (2. baskı). Ankara: Eğiten Kitap.

Boran, M. (**2016**). The investigation of the perceived problem solving skills of the gifted and talented students in terms of their metacognitive awareness and critical thinking disposition, Unpublished Master's Thesis, retrieved from 10.02.2020.

Botvin, G. J. (**1995**). Drug Abuse Prevention in School Settings, in Drug Abuse Prevention with Multiethnic Youth. G. J. Botvin, S. Schinke, and M. A. Orlandi (eds.), Sage, Thousand Oaks, California, pp. 169-192, 1995.

Botvin, G. J., and **Botvin**, E. M. (**1992**). School-Based and Community-Based Prevention Approaches, in Substance Abuse: A Comprehensive Textbook (2nd Edition), J. H. Lowinson, P. Ruiz, and R. B. Millman (eds.), Williams and Wilkins, Baltimore, Maryland, pp. 910-927.

Botvin, G. J., Baker, E., Dusenbury, L., Bovtin, E., and Diaz, T. (**1995**). Long-term follow-up results of a randomized drug abuse prevention trial in a White middle-class population. Journal of the American Medical Association, 273(14): 1106–1112.

Bozkurt, S. (**2020**). Son Çocukluk (9-11yaş) Çağındaki Çocuklarda Hayır Diyebilme ve Atılganlık Beceri Sıklığı ve Kullanılan Ölçeklerin Tanımlama Yeterliliği [Frequency of No Sayıng and Assertiveness Skills in Last Chıldhood (9-11 Years) and Diagnostıc Quality of Used Scales] Unpublished Master's Thesis, retrieved from 10.02.2020.

Bragger, J. D. (**1982**). Responses to teacher commands: An effective teaching strategy. The Modern Language Journal, 66(1): 9-12. doi:10.2307/327809.

Bulut, D. (**2003**). Saying "no" in a foreign language: Can you really do it? The Linguistic Association of Korea Journal, 11(3): 145-169.

Cleaveland, B. L. (**1996**). Development and Valıdatıon of A Behavıoral Measure of Drug Refusal, Unpublished Doctoral Dissertation, Clinical Psychology, Blacksburg.

Demiray, P. (**2015**). Cinsiyete göre gerçek doğum sırasının atılganlık düzeyine etkisi [The effect of the order of the level of extrovertedness according to the gender]. Unpublished Master Thesis, https://tez.yok.gov.tr.

Deryahanoğlu, G. (**2014**). Kick boks hakemlerinin karar verme ve atılganlık düzeylerinin algılanan mesleki yeterlilik üzerine etkisinin incelenmesi [The inspection of the effect of kick box referess' making decision and assertiveness levels on profesional adequacy]. Unpublished Master Thesis, https://tez.yok.gov.tr.

Doğan Akıncı, A. (**2006**). İlköğretim sekizinci sınıf öğrencilerinin atılganlık puanları ile algılanan ana-baba tutumları ve annelerin sürekli kaygı puanları arasındaki ilişkinin ve cinsiyete göre atılganlık puanlarının farklılaşmasının incelenmesi [Observation of relation between the assertiveness scores, the perceived parental attitudues of eight grades and the continual anxiety scores of their mothers and having a difference of their assertiveness scores according to sex].

Unpublished Master Thesis, https://tez.yok.gov.tr.

Dönmez, N. B. (**2004**). Bilim sanat merkezlerinin kuruluşu ve işleyişinde yapılması gereken düzenlemeler [Arrangements to be made in the establishment and operation of science and art centers]. Üstün yetenekli çocuklar bildiriler kitabı. 23-25 Eylül. İstanbul: Çocuk Vakfı Yayınları, 69-74.

Elliott, M., Browne, K., and Kilcoyne, J. (**1995**). Child sexual abuse prevention: What offenders tell us. Child Abuse & Neglect, 19(5): 579-594. doi:10.1016/0145-2134(95)00017-3.

Elmas, Ç. (**2003**). Yapay sinir ağları (kuram, mimari, eğitim, uygulama) [Artifical Neural Networks (theory, architecture,application)]. Ankara: Seçkin Yayıncılık.

Epstein, J. A., Zhou, X. K., Bang, H., and Botvin, G. J. (**2007**). Do competence skills moderate the impact of social influences to drink and perceived social benefits of drinking on alcohol use among inner-city adolescents? Prevention Science, 8: 65–73.

Erdem, R., Pirinçci, E., and Dikmetaş, E. (**2005**). Üniversite öğrencilerinin zaman yönetimi davranışları ve bu davranışların akademik başarı ile ilişkisi [University students' time management behavior and the relationship between these behaviors and academic success]. Manas Üniversitesi Sosyal Bilimler Dergisi, 14: 167-177.

Esen, C. A. (**2012**). Spor yapan ve yapmayan üniversite öğrencilerinin benlik saygısı ve atılganlık düzeylerinin incelenmesi (Muğla Üniversitesi Örneği)[Analyzing the self-esteem an assertiveness levels of university who are doing sports and not doing sports]. Unpublished Master Thesis, https://tez.yok.gov.tr.

Flay, B. (**1985**). What do we know about the social influences approach to smoking prevention?: Review and recommenations. In C. Bell (Ed.), Prevenrion research: Deterring drug abuse among children and adolescents. Washington, DC: NIDA Research Monograph.

Garner, E. (**2012**). Assertiveness: Re-claim your assertive birthright, http://www.gesp.ipg.pt/files/assertiveness.pdf https://tez.yok.gov.tr/.

Gottfredson, D. C., Cross, A., Wilson, D., Rorie, M., and Connell, N. (**2010**). An experimental evaluation of the All Stars prevention curriculum in a community after school setting. Prevention Science, 11: 142–154.

Herrmann, D., and **McWhirter**, J. (**1997**). Refusal and resistance skills for children and adolescents: A selected review. Journal of Counseling and Development, 76: 177-187.

Hudgins, B., and **Edelman** S. (**1986**). Teaching critical thinking skills to fourth and fifth graders through teacher-led small group discussions. Journal of Educational Research, 79(6): 333–342.

IBM SPSS Neural Networks 21 (**2011**). IBM SPSS Neural Networks 21 Manual, USA: IBM.

Kapancı, İ. (**2006**). Sosyal bilgiler eğitimi öğrencilerinin başarı ve atılganlık düzeylerinin karşılaştırmalı olarak incelenmesi [Comparative analysis of success and assertiveness levels of students education of social scienc]. Unpublished Master Thesis, https://tez.yok.gov.tr.

Katz, R. C., Robisch, C. M., and Telch, M. J. (**1989**). Acquisition of smoking refusal skills in junior high school students. Addictive Behaviors, 14(2): 201–204.

Leclerc, B., Wortley, R., and Smallbone, S. (**2011**). Victim resistance in child sexual abuse: A look into the efficacy of self-protection strategies based on the offender's experience. Journal of Interpersonal Violence, 26(9): 1868-1883. DOI: 10.1177/0886260510372941.

Leclerc, B., Wortley, R., and Smallbone, S. (**2011**). Getting into the script of adult child sex offenders and mapping out situational prevention measures. Journal of Research in Crime and Delinquency, 48(2): 209–237. https://doi.org/10.1177/0022427810391540.

Leming, J. S. (**1997**). Whither goes character education? Objectives, pedagogy, and research in education programs. Journal of Education, 179(2): 11-34.

Mackenzie, A., and **Nickerson**, P. (**2009**). The time trap. New York: American Management Association.

MEB (**2018**). Science and Art Centers Student Identification and Placement Guide 2018-2019. https://orgm.meb.gov.tr/www/2018-2019-bilsem-ogrenci-tanilama-ve-yerlestirme-sureci-ile-ilgili-sikca-sorulan-sorular/icerik/1129 retrieved from 10.09.20.

Nichols, T. R., Birnel, S., Graber, J. A., Brooks-Gunn, J., and Botvin, G.

J. (**2010**). Refusal skill ability: An examination of adolescent perceptions of effectiveness. Journal of Primary Prevention, 31: 127–137.

O'Brien, K. R. (**2014**). Just saying "no": An examination of gender differences in the ability to decline requests in the workplace. Unpublished Doctoral Dissertations https://scholarship.rice.edu/handle/1911/77421.

Öcal, O. (**2010**). Yalnızlar romanında irade felci ve kaçış [In the novel of Alones willpower stroke and escape]. International Periodical For the Languages, Literature and History of Turkish or Turkic, 5(4): 379-1389.

Özkan, İ. (**2019**). Fen ve teknoloji okuryazarlığına ilişkin öz yeterlik algısı ile akademik başarı arasındaki ilişkinin yapay sinir ağı ile analizi [Analysis of the relationship between self-efficacy perception and academic achievement in science and technology literacy with artificial neural networks] Unpublished Master's Thesis, https://tez.yok.gov.tr/.

Öztemel, E. (**2012**). Yapay sinir ağları [Artifical Neural Networks]. İstanbul: Papatya Yayıncılık.

Pentz, M. A. (**1985**). Social Competence and Self-Efficacy as Determinants of Substance Use in Adolescence, in Coping and Substance Use. T. A. Wills and S. Shiffman (eds.), Academic Press, San Diego, California, pp. 117-142.

Ringwalt, C. L., and **Palmer**, J. H. (**1990**). Differences between White and Black youth who drink heavily. Addictive Behaviors, 15: 455-460.

Rohrbach, L. A., Graham, J. W., Hansen, W. B., Flay, B. R., and Johnson, C. A. (**1987**). Evaluation of resistance skills training using multitrait–multimethod role play skill assessments. Health Education Research, 2(4): 401–407.

Sallis, J. F., Elder, J. P., Wildey, M. B., de Moor, C., Young, R. L., Shulkin, J. J., and Helme, J. M. (**1990**). Assessing skills for refusing cigarettes and smokeless tobacco. Journal of Behaivoral Medicine, 13(5): 489–503.

Scheier, L. M., Botvin, G. J., Diaz, T., and Griffin, K. W. (**1999**). Social skills, competence, and drug refusal efficacy as predictors of adolescent alcohol use. Journal of Drug Education, 29: 251-278.

Shope, J. T., Copeland, L. A., Maharg, R., Dielman, T. E., and Butchart, A. T. (**1993**). Assessment of adolescent refusal skills in an alcohol misuse prevention study. Health Education Quarterly, 20(3): 373–390.

St. Lawrence, J. S., Brasfield, T. L., Shirley, A., Jefferson, K. W., Alleyne, E., and O'Bannon, R. E. (**1995**). Cognitivebehavioral intervention to reduce African American adolescents' risk for HIV infection. Journal of Consulting and Clinical Psychology, 63(2): 221–237.

Sussman, S., Stacy, A. W., Dent, C. W., and Burciaga, C. (**1993**). Refusal assertion versus conversational skill role-play competence: Relevance to prevention of tobacco use. Statistics in Medicine, 12: 365–376.

Szpalski, M., Gunzburg, R., and De Kleuver, M. (**2003**). Unethical research funding contracts: Just say no! European Spine Journal, 12(2): 107-107. doi:10.1007/ s00586-003-0551-x.

Şahin, M. (**2010**). Yapay sinir ağları ile dâhili ortamlardaki aydınlık düzeyinin analizi [Analysis of illuminance levels in indoor atmosphere by using artificial neural networks]. Unpublished Master's Thesis, https://tez.yok.gov.tr/.

Tepehan, T. (**2011**). Türk öğrencilerinin PISA başarılarının yordanmasında yapay sinir ağı ve lojistik regresyon modeli performanslarının karşılaştırılması [Performance comparison of artificial neural network and logistic regression model in predicting Turkish students? PISA success] Unpublished Doctoral Dissertation, https://tez.yok.gov.tr/.

Tezcan, Ö. (**2016**). İlkokul 3.sınıf Hayat Bilgisi dersinde sosyal beceri eğitim programının etkisinin sınanması: Bir eylem araştırması [Investigation of the influence of social skills education program as part of the primary school third grade life studies: An action research]. Unpublished Doctoral Dissertation, https://tez.yok.gov.tr/

Turner, G. E., Burciaga, C., Sussman, S., and Klein-Selski, E. (**1993**). Which lesson components mediate refusal assertion skill improvement in school-based adolescent tobacco use prevention? International Journal of Addictions, 28(8): 749–763.

Uğur, A., and **Kınacı**, A.C., (**2006**). Yapay Zeka Teknikleri ve Yapay Sinir Ağları Kullanılarak Web Sayfalarının Sınıflandırılması [Classification of Web Pages Using Artificial Intelligence Techniques and Artificial Neural Networks]. İnet-tr'06, TOBB Ekonomi ve Teknoloji Üniversitesi, Ankara.

Üstündağ, T. (**2003**). Yaratıcılığa Yolculuk [Journey to Creativity]. Ankara: Pegema Yayıncı.

Varışoğlu, B., Şeref, İ., and Yılmaz, İ. (**2012**). Türkçe öğretmeni adaylarının zaman yönetimi becerileri ve tutumlarının incelenmesi [A Study on Time Management Skills and Attitudes of Prospective Turkish Teachers]. A. Ü. Türkiyat Araştırmaları Enstitüsü Dergisi, 47: 75-86.

Wynn, S. R., Schulenberg, J., Kloska, D. D., and Laetz, V. B. (**1997**). The mediating influence of refusal skills in preventing alcohol misuse. Journal of School Health, 67: 390–395.

Yılmaz, F. (**2017**). The investigation of primary school 4th grade students' skills of saying 'no'. Doctoral Dissertation, https://tez.yok.gov.tr/

Yılmaz, F., and **Sözer**, M. A. (**2018**). The scale of being able to say "no" for children: Validity and reliability analysis. Journal of Measurement and Evaluation in Education and Psychology, 9(1): 33-48.

Yiğit, S. (**2011**). Kuantum-kaskat lazerlerin karakteristik niceliklerinin yapay arı kolonisiyle eğitilmiş sinir ağları ile modellenmesi [Modeling the characteristic quantities of quantum-cascade lasers by neural networks trained by artificial bee colony algorithm]. Unpublished Master's Thesis, https://tez.yok.gov.tr/.

Yurtkulu, T. (**2018**). Gifted and talented students' higher order thinking skills and critical thinking tendency: Mixed method study. Unpublished Master's Thesis, https://tez.yok.gov.tr/.

Yüce, Y. (**2002**). İlköğretim ikinci kademe öğrencilerinin reddetme becerilerinin bazı değişkenler açısından incelenmesi [The Study of secondary degree of primary school students refusal skills with respect to some variables]. Unpublished Master Thesis, https://tez.yok.gov.tr/.